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Fresh Apple Utilization As Related to Residency

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SUMMARY

A random sample of homemakers in West Virginia was asked a series of questions regarding their attitudes toward uses of fresh apples. Contingency chi-square tests of independence were used to determine whether any of the responses were dependent on place of residence.

Forty-four per cent of the homemakers interviewed indicated that their purchases of apples varied little from month to month. The fall and winter months were equally popular with those who did vary their purchases.

Red delicious was the most frequently mentioned variety for eating fresh. Twenty-four per cent of the people interviewed were unable to name the variety of apple preferred by their families, with a relatively large number of these people coming from the "urban" category.

Brand preference for apples was virtually nonexistent. Ninety-three per cent of the survey sample indicated they did not look for a specific brand name when they bought apples. Four per cent were confused about what constitutes a brand name, and replied with a variety name.

In general, a crisp, fine-textured, juicy apple was preferred for fresh consumption. There appeared to be a stronger than average preference among population density B residents for a soft, mealy, dry apple, although the majority in this group still preferred the crisp, fine-textured, juicy apple.

In a series of questions concerning which one of seven fruits the respondents would serve for various situations presented, apples were the most frequent choice in 8 of 11 situations. Bananas were next in popularity, being the second choice in seven situations.

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Fresh Apple Utilization As Related to Residency

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Per capita consumption of fresh apples[1] in the United States decreased from 74 pounds in 1912 to 15 pounds in 1969. The average annual rate of decline during this period was over one pound per capita. Although recent data indicate a slower rate of decline in per capita consumption, commercial producers are still concerned about the future of the fresh apple market. As a result of this concern the following questions are being asked.

1. What is responsible for the large decrease in per capita consumption?
2. What can be done to reverse this downward trend?

PURPOSE OF THIS STUDY

Little information has been published on the socio-economic characteristics of fresh apple consumers. Most previous studies lacked the detail necessary to provide the industry with guidelines for assessing the causes and for developing a program aimed at reversing the downward trend in per capita consumption.

This study was begun as an exploratory project to identify some needed areas for future research. However, it was found desirable to broaden the scope so that relationships between socio-economic variables (income, age, education, place of residency, and family size) and fresh apple utilization could be explored in more detail. This publication reports analysis of relationships between place of residency and purchase patterns, utilization, and preferences for fresh apples. The relationships between income and the same variables as above were reported in a preceding publication (Bulletin 625) and the relationship with age will be reported in a subsequent bulletin (Bulletin 627).

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[1] The term "fresh apple" refers to the apple in its natural state, without any type of processing. In this publication use of the word "apples" refers to fresh apples unless otherwise stated.

METHODOLOGY

The 55 counties in West Virginia were divided into three categories on the basis of population density in 1970. Population density A counties were defined as having 20 or fewer inhabitants per square mile; C counties 100 or more; and B counties included those with over 20 but less than 100 inhabitants per square mile.[2] According to this definition there were 9 A, 15 C, and 31 B population density counties in the State.

To obtain a representative sample, the number of counties surveyed in each of the three categories was proportional to the per cent of State population reported in each of the following classifications. In 1960, 6.5 per cent of the population of West Virginia was considered rural farm, 40.5 per cent urban, and 53 per cent rural non-farm.[3] Accordingly, of the 18 counties randomly selected, three were selected from population density A counties, five from population density C counties, and 10 from population density B counties.

Four starting points were randomly selected in each of the A and B counties by using a table of random numbers and a county map. Three interviews with homemakers were completed at each starting point in A counties, making a total of 12 interviews from each county. In the B county classification six interviews were completed at each starting point, making the county total 24 interviews. For the urban or C counties telephone directories for the urban center in each county were used to randomly select three starting points. Twelve homemaker interviews were conducted at each starting point.

The total number of personal interviews with homemakers was 451; 33 in population density A counties, 240 in population density B counties, and 178 in population density C counties, which accounted for 7 per cent, 53 per cent, and 40 per cent of the sample, respectively. The interviews were completed during the months of May and June, 1972.

Normally a rigorous statistical test is not necessary for indentifying relationships that would provide profitable areas for future research. Therefore, the chi-square test for independence was used to identify significant relationships. For the purpose of this study, tabulated chi-square values having a probability of .10 or less were considered to be significant.

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[2] U.S. Department of Commerce, Bureau of the Census, 1970 *Census of Population: Number of Inhabitants, West Virginia* (Washington: U.S. Government Printing Office, May, 1971), p. 14.

[3] Leonard M. Sizer, *Population Changes in West Virginia With Emphasis* 1940-1960, Agricultural Experiment Station Bulletin 563 (Morgantown: West Virginia University, May, 1968), p. 29.

CHARACTERISTICS OF SAMPLE

Socio-economic variables such as age, education, income, occupation, and family size provide a good basis for comparing respondents living in areas of varying population densities. Later in this study, place of residence will be used as the independent variable in assessing the utilization of fresh apples in West Virginia.

The age distribution of homemakers who responded in personal interviews was similar for all three population densities (Table 1). In all population density categories the smallest percentage of the homemakers interviewed was less than 25 years and the largest proportion was 55 years of age and over. A smaller percentage of homemakers in population densities A and C were in the 34 or less age category than for the total sample. For the category 55 years and over population density C showed a higher proportion than the total sample. Population density B, which includes surburban areas, had the lowest average age. This figure supports the contention that larger proportions of A and C populations are composed of older people.

Forty-eight per cent of all respondents in the sample reported attendance or graduation from high school as their educational achievement, with very little difference due to place of residence. Only four per cent of the sample had completed some graduate work. The proportion completing some college graduate work by place of residency was six per cent in population density C, three per cent in population density B, and none in population density A areas.

More than 65 per cent of the homemakers in the total sample—78 per cent of population density A, 54 per cent of population density B, and 72 per cent of population density C—reported annual household incomes of less than $10,000. There were 18 per cent of the sample with incomes over $15,000, with population density B showing 21 per cent of the sample; A, 9 per cent; and C, 7 per cent. The higher annual income and lower average age for the B category is consistent with what one would expect. However, the relatively high levels of college education in the A and C categories were not expected.

ANALYSIS

The appearance of modern transportation, refrigeration, and self-service super markets, has been responsible for changes in the market structure of the fresh apple industry. The combined improvement in transportation and refrigeration has influenced competition by increasing the size of the supply area from which high quality fruit can be obtained for a given market. Controlled atmosphere storage has enabled producers to supply high quality apples over a greater part of the year and higher incomes have made it possible for housewives to buy out-of-season fruit for family consumption. However, increased participation of homemakers in the labor force may be related to the decline in fresh apple consumption and the increased consumption of processed apples.

PURCHASES

When persons in the sample were questioned concerning their purchases of apples, more than 90 per cent indicated they had purchased apples for fresh consumption during the last year (Table 2). The 88 per cent in the A and B categories that reported purchasing fresh apples during the last year was slightly lower than the 93 per cent reported by density population C housewives. The relationship between place of residence and apple purchases was not significant when tested by chi-square. In the tables the top figure in each response category indicates the number of expected responses based on the chi-square test, and the bottom figure is the amount of the total chi-square value accounted for by that cell.

There was a significant difference in color of apples purchased by respondents living in different areas. Over half of all the people interviewed reported buying both red and yellow apples during the year—142 reported buying red and 44 reported buying yellow apples only (Table 3). The number of respondents reporting purchases of red apples was less than expected for densities A and B and more than expected for density C. The relationship presented in Table 3 suggests that the preference for red apples is stronger in density C than in A.

There appears to be a dependent relationship between place of residence and seasonality of fresh apple purchases. The number of density B residents who purchased more apples in the fall was higher than would be expected by chance, while those who purchased the same quantity each month was lower (Table 4). In the density C category, the pattern was reversed, with an unexpectedly large number of respondents making approximately the same level of fresh apple purchases throughout the year; there were fewer respondents than expected with increasd purchases in the fall months. Of those who had increased purchases in the winter months, the number in density B was relatively high while for density C it was low.

The most frequently voiced reason for increased apple purchases was a lower price when apples are plentiful (Table 5). Another common reason for frequent purchases was increased appetite for fresh apples. A relatively high number of density B residents noted that their apple purchases increased when apples were gone from their own trees, while density C residents, who are less likely to have apple trees, made no mention of this. Perhaps as a result of this, the number of density C residents who cited fresher apples or better flavor as a reason for increasing apple purchases was rather high, while density B residents who are likely to have fresh apples off their own trees had a very low response in this category. Forty-four per cent of the total sample did not answer this question either because it was not applicable or they had no special reason for increasing fresh apple purchases during a certain period.

The most popular variety for eating out of hand was red delicious, preferred by 31 per cent of the survey sample (Table 6). Twenty-four per cent of those interviewed were unable to name the variety preferred by their families. The number of density C residents who were unaware of the variety names was relatively large, while fewer than expected density A residents fell into this category. Place of residence appears to be related to variety preferences. Stayman or winesap apples were the most frequent response of density A residents, and red and yellow delicious were next in popularity. In the other two residence categories red delicious was the preferred variety, with yellow delicious being the next most popular variety. Density C response to yellow delicious was quite light, however.

Over half the respondents purchased their apples for fresh consumption at a supermarket (Table 7). Place of residence did appear to have an influence on place of purchase, however. An unusually large number of density A residents purchased their apples from a produce or fruit market, and the number of density C residents who purchased their apples from a supermarket was larger than would be expected by chance, satistically. Among those who named a fruit farm for the majority of their fresh apple purchases, 48 were density B residents and only one was a density C resident.

Clear plastic bags appear to be the most common packaging type purchased by West Virginia homemakers (Table 8). Basket or box loose apples were the second and third most commonly purchased packaging types, respectively. The density C residents who purchased apples in overwrapped trays were more than would be expected by chance, while fewer than expected indicated they purchased apples by the basket or box. Baskets or boxes were the most often mentioned packaging type by density A homemakers, and they were frequently purchased by 28 per cent of the density B homemakers. Thus it appears that place of residence does have an influence on the type of packaging in which apples are purchased.

There is some difference between the packaging type homemakers actually buy and what they prefer. Plastic bags were rated to be most convenient by all residence categories (Table 9). Loose apples were preferred by slightly less than one-third of the homemakers, which is more than the number who actually purchased loose apples. (Loose apples are less available than prepackaged apples and are usually more costly, which may account for the discrepancy.) Apples sold by the basket or box received relatively heavy response among density A and B residents and very light response from density C residents. This pattern was similar to that of the preceding question.

The most important reasons for selecting packaging were ability to see the product and ease in handling and storing (Table 10). Ten per cent of those interviewed mentioned economy as the deciding factor. This response appeared more frequently among population density A and B residents than among C residents. The keeping quality of the packaging received a higher response from density B residents than would be expected by chance. Thus, not only does package preference appear to be influenced by location of residence, but reasons for preferring the package type are also tied to residence.

Eighty-nine per cent of the respondents indicated they were able to find apples packaged in appropriate quantity for their families (Table 11). Perhaps due to this, few improvements for packaging were suggested (Table 12). No statistical tests were performed on these data due to the nature of the frequency distribution.

West Virginia consumers do not appear to have brand preferences for fresh apples. Ninety-three per cent of those interviewed indicated they do not look for a specific brand when they buy fresh apples (Table 13). Four per cent of the sample responded with a variety rather than a brand name. The contingency chi-square test of independence was not performed on these data because of the very high proportion who had no brand preference.

PREFERENCES

A series of fresh apple characteristics including firmness, juiciness, sweetness, texture, color, and size was listed and the respondent was queried as to the preferred characteristics. In general, a crisp, fine-textured, juicy apple was preferred (Tables 14, 15, 16). Characteristic preferences did vary with residence, however. Of those who preferred a soft, mealy, dry apple, the response from the density B category was greater than would be expected by chance, and density C response was rather low. These characteristics are generally associated with apples which have received regular as opposed to controlled atmosphere storage over the winter. It is possible that residents who store apples from their own trees for winter use would be more accustomed to these characteristics. Since very few density C residents would have their own apple trees, this may partially explain the differences in preferences.

A sweet apple was generally preferred to a tart apple; however, in the density A category the pattern was reversed (Table 17). Many of the apple trees on homesites are staymen and winesap, which are tart apples and therefore may contribute to the difference in preferences of density A residents.

Of the 445 respondents to the question concerning preferred apple size, 370, or 83 per cent, preferred a medium apple (Table 18). Sixty-three respondents preferred a large apple, with a larger amount than expected being from the density B category and a smaller number from the density A category. There was also a significant difference by place of residence in the color of the apple preferred (Table 19). Although a bright or deep red apple was preferred by more people in each density category, the pattern among those who preferred an apple with more yellow than red indicated a preference among density B residents for this color apple. The response of density C residents to a predominately yellow apple was considerably lower than expected on the basis of the chi-square test.

Respondents were asked which variety of apple fit the characteristics they had mentioned as being preferred for a fresh apple. Red delicious was the most frequently named variety, preferred by 38 per cent of the sample (Table 20). Yellow delicious and staymen or winesap were also favorite varieties. The number of density A residents who felt yellow delicious best fit the characteristics they described was relatively high, and density C response was below that expected by chance. The direction of actual response when compared to expected response concurs with that in the preceding table for the respondents who preferred a predominately yellow apple. The relatively large number of density A residents who felt stayman or winesap fit their description is in accordance with the preference of density A residents for tart apples.

The large number of homemakers (19 per cent of the sample) who could not name the variety which fit the characteristics they described should be pointed out. There was a very high number of density C residents who fell in this category, which may indicate that as people are removed from apple production, their awareness of names or differences in apples is less acute. At any rate, it might be profitable for the apple industry to educate the public on apple varieties and the uses for which they are suited.

In a series of questions respondents were asked which one of seven fresh fruits they would serve for various situations presented. In general apples were the most frequent choice, leading all other fruits listed in 8 of 11 situations. Bananas were next in popularity, being the second most frequent choice in seven situations. Contingency chi-square tests were preformed to test the null hypothesis of independence between fruit chosen and place of residence. In order to get meaningful tabular chi-square values, fruits with very few or no responses were excluded from the test.

Grapefruit was by far the most frequently mentioned fresh fruit which respondents would serve for breakfast, regardless of residence (Table 21). In density A and C categories oranges followed grapefruit, and bananas were third in popularity. The second and third choices were reversed in density B category—an indication that residence does influence choice of fruit for breakfast.

Choice of fresh fruit for lunch also varied depending on residence (Table 22). Bananas and apples each received 35 per cent of the density A response, followed by peaches. Peaches were the first choice by density B and C residents and apples were the second choice, although the difference in frequency for the density C residents was negligible.

For the evening meal the most commonly mentioned fruit was peaches, followed by apples and pears (Table 23). There did appear to be difference in preference by residence, however. The number of density A residents who preferred apples for the evening meal was larger than expected and was larger than the response to any of the other fruits. There was no density A response for bananas, while the density C response to bananas was larger than was expected statistically.

Apples and bananas were the preferred fruits for an adult's sack lunch, accounting for 88 per cent of the total response to this situation (Table 24). Among those who preferred oranges, the density B residents had a relatively heavy response and density C residents showed light response. Based largely on the response to this fruit, there appeared to be dependent relationship between place of residence and preferred fruit for an adult's sack lunch.

Apples were the most frequently mentioned fresh fruit for a child's sack lunch for all population densities (Table 25). Second and third preferences were bananas and oranges, respectively. There was no evidence that response to this situation was related to residence location.

Apple and bananas were also the more common responses for the fresh fruit one would serve for a children's party (Table 26). Grapes were the third most popular selection in all categories, receiving 13 per cent of the total response. Again, selection of fruit did not appear to be related to place of residence.

Homemaker response to apples for a teenager's party was quite high (Table 27). Apples were preferred by 46 per cent of the sample and grapes, which were second in frequency, received 18 per cent of total response. Place of residence did not appear related to selection of fruit.

The three more common fruits for an adult's party were apples, peaches, and grapes (Table 28). Apples were the most popular fruit for all residence categories. Population density A residents mentioned grapes more often than peaches, while density B and C residents preferred peaches to grapes. There were significant differences in responses by residence, mainly in the response to bananas and grapefruit.

Apples were the most popular selection for a child's snack, regardless of place of residence (Table 29). Next in popularity were bananas, although in the density B category the difference in response was very little. Grapes were unpopular in all residence categories. There appeared to be no significant relationship between place of residence and fruit selection.

Apples and bananas were also the more frequently mentioned fruits for a teenager's snack; and again, residence did not appear to influence fruit selection (Table 30). As for a child's snack, grapes were preferred by very few homemakers.

In considering the fruit one would serve for an adult's snack, apples were once again the most frequently mentioned fruit for all residence categories (Table 31). In general, bananas ranked second in frequency. Population density A residents mentioned peaches more frequently than bananas, although the difference in frequencies for peaches and bananas was negligible.

Place of residence did not appear to influence attitudes concerning the nutritional value of processed apples as opposed to fresh apples (Table 32). Seventy-seven per cent of the homemakers considered fresh apples to have greater nutritional value than processed apples, while 21 per cent felt the two forms were equally nutritious. Only one per cent of the homemakers interviewed rated processed apples as being more nutritious than fresh apples. All of the homemakers who answered the question in this fashion were from the density B category.

A series of characteristics for apples were listed and the respondents were asked which apple was superior—a fresh red delicious apple produced in West Virginia or in Washington. This question proved very difficult to answer. Originally, the respondents were asked to choose between the two apple-producing regions. Many people did make a choice, but indicated to the interviewer that it was a guess. In view of this lack of conviction, later respondents were permitted to answer "don't know" if it was apparent that they could not make a clear-cut choice.

There was a strong tendency for the respondents to answer all parts of the question in like fashion, that is, to check the same apple as superior in all characterics listed. The West Virginia-produced apple was considered superior to the Washington-produced apple by at least 87 per cent of the homemakers responding to this series of questions (Tables 33-38). For most of the characteristics mentioned there did not appear to be a dependent relationship between place of residence and apple preference. For flavor and size, however, there did appear to be a dependent relationship.

There was general agreement among the West Virginia homemakers that people would not be willing to pay more for a fresh red delicious apple produced in Washington than the same type apple produced in West Virginia (Table 39). Of the 13 per cent who felt Washington apples could command a higher price, none were density A residents and a larger number than would be expected by chance were from the density B category.

UTILIZATION

The most popular fruits for fresh consumption were bananas, apples, and oranges (Table 40). In the density C group apples were the most popular selection, while bananas were rated first in the density A and B categories. Fruits receiving low response in all residence categories were grapefruit, pears, and grapes. Brand name in purchasing these fruits was unimportant. Seventy-six per cent of the respondents indicated they did not look for a specific brand name (Table 41). Of those who did prefer a particular brand, Chiquita, which sells bananas, was mentioned most frequently. There was some confusion as to what constitutes a brand name, with five per cent of the sample giving a variety name rather than brand.

The range of per capita annual apple consumption was from zero to over 100 pounds (Table 42). Seventy per cent of the population consumed 40 or fewer pounds of fresh apples per capita annually; eight per cent had an annual per capita consumption of over 100 pounds. There appears to be a dependent relationship between place of residence and apple consumption; however, a more rigorous statistical test would be necessary to determine the nature of the differences.

In a series of questions respondents were asked if their use of apples for various circumstances had varied over the last 10 years. For each of these circumstances residence appeared to influence level of apple consumption. Over 60 per cent of the homemakers interviewed indicated that their use of apples for cooked desserts or preparations eaten with the main meal had remained constant (Tables 43, 44). Only six per cent had increased apple use for these purposes during this time period. Of those who indicated increased apple use, the number from the density B category was larger than the expected value and density C response was less than expected. Density C residents appeared to be decreasing apple use for cooked desserts and main meal preparation more rapidly than residents from the other two categories.

The largest increase in use of apples was for eating out of hand (Table 45). Eighteen per cent of the respondents indicated an increased use of apples for this purpose with density A response larger than expected and density B response smaller than expected. Also larger than expected was the number of density A residents indicating decreased apple consumption over the last 10 years, with few density A residents having constant consumption during that period.

Most people in this survey indicated that their use of apples for preservation had remained constant over the last 10 years (Table 46). Few density C residents had decreased amount of apple preservation, and none increased preservation of apples. In fact, the only increase in apple preservation was from residents in the density B category.

Those respondents who indicated an increase or decrease in any of the uses for apples mentioned were asked which factors contributed to their change in consumption. A decrease in family size was the main reason for decreased use of apples for the situations mentioned, with health reasons or shortage of preparation time also being mentioned (Table 47). Place of residence did influence the factors contributing to decreasing apple use. In the density C category health reasons and time shortage received a relatively heavy response, while decreased family size was mentioned less frequently than would be expected by chance. The reverse was true of the density B category.

The most frequently mentioned factor contributing to increases in apple use was an increase in family size (Table 48). Health reasons, changes in tastes and preferences, and increased access to apple trees were of lesser importance. The pattern among density C residents was significantly different from that of the other residence categories. Increase in family size and change in tastes and preferences were equally important factors and heath reasons were mentioned more frequently than would be expected by chance. No density C residents indicated they increased apple consumption due to access to apple trees.

The respondents were asked to estimate the per cent of their apple purchases which were used in each of four stated categories: cooked desserts, main dish accompaniments, eating fresh, and preservation. The average per cent used for desserts was less than 27 per cent for all residence categories (Table 49). The mode, which is the most frequently mentioned response, was 25 per cent for the density A and B residents and 10 for the density C residents. The range for the density B category was larger than that of the other two categories. Fifty-seven per cent of the density B and C residents used no apples for desserts, while 70 per cent of the density A residents didn't use apples for this purpose.

The average per cent of apple purchases used for applesauce or other preparations eaten with the main part of the meal was close to 30 for all residence categories (Table 50). The range for all categories was quite large and the mode was 25 per cent regardless of place of residence. Over half of the respondents in each category indicated they used no apples for making applesauce or other preparations eaten with the main part of the meal.

Most of the apples are purchased for eating out of hand. The average per cent in this category was greater than 70 for all three residence categories and the mode was 100 per cent for each group (Table 51). Only 12 of the 451 respondents did not eat fresh apples.

The majority of the homemakers interviewed did not preserve apples (Table 52). Of those who did preserve apples, the average per cent of total fresh apple purchases used for this purpose was less than 23 per cent for all residence categories. The mode for the density A group was 25 per cent, and for the other two residence categories it was 10 per cent.

Place of residence did appear to influence the source of apples for apple pie. Population density A residents tended to make their own pies from fresh apples while there was a stronger tendency of density C residents to purchase prepared pies (Table 53). Thirteen per cent of the survey sample indicated they used processed apples for making pies, and eight per cent never served apple pie. Response for the latter classification was rather heavy in density C centers and light in density B categories.

In general, homemade applesauce and canned applesauce were used with about the same frequency (Table 54). By residence, density A and B respondents favored making their own applesauce from fresh apples while density C residents used more canned applesauce. Very few respondents indicated they did not serve applesauce.

CONCLUSIONS AND IMPLICATIONS

There is some evidence from this study that apples, which used to be considered a seasonal fruit, are becoming a year-around fruit. Increased use of controlled atmosphere storage, which evens out fresh apple supply as well as price fluctuation throughout the year, should accentuate this trend. The year-around availability of apples is bringing them into competition with seasonal fruits such as peaches and strawberries with which they have never had to compete. As a result, the apple industry may need to be more aggressive in order to increase its share of the fresh fruit market.

Place of residence influenced response to many of the questions in this survey. Thus this information should serve to point out consumer differences related to population density and aid the industry in meeting changing consumer tastes and preferences.

A sizeable number of homemakers interviewed could not name the apple variety preferred by their household members, and brand preference was virtually nonexistent. From this it appears that industry education—oriented advertising, explaining prime uses of the various apple varieties, could be useful in combatting the downward trend in fresh apple consumption.

Statistical reports indicate that consumers differentiate between Washington apples and those grown elsewhere, allowing Washington apples to command a premium price. This did not appear to be true of West Virginia consumers, who are generally loyal to their state. The homemakers interviewed overwhelmingly preferred locally-grown red delicious apples to those grown in Washington. They also indicated that they would not pay more for a Washington red delicious apple.

The per cent of apples purchased for eating out of hand was considerably higher than for other uses such as applesauce, desserts, or preservation. Also, the largest increase in apple consumption during the last 10 years was for eating out of hand—over double the increases reported in the other categories. Promotional campaigns presenting apples as a nutritious, nonmessy, fruit would probably be more effective than campaigns dealing with uses of apples which require preparation time.

TABLES 1-54

TABLE 1. COMPARISON OF SOCIO-ECONOMIC CHARACTERISTICS BY PLACE OF RESIDENCY.

Socioeconomic Variable	Population Density[a] A (N = 33)	B (N = 240)	C (N = 177)	Per Cent of Total Sample (N = 450)
		Per Cent		
Age of Homemakers:				
Less than 25	3	8	3	5
25-34	9	17	7	13
35-44	18	20	19	20
45-54	33	20	23	22
55 and over	37	35	48	40
Education of Homemaker:				
Grade school (1 - 8 Years)	36	41	18	31
High School (9 - 12 Years)	46	49	48	48
College	18	7	28	17
Graduate Work	0	3	6	4
Annual Household Income:				
$ 1,000 - $ 4,999	39	22	46	36
$ 5,000 - $ 9,999	39	32	26	30
$10,000 - $14,999	9	18	16	16
$15,000 - $24,999	6	15	6	10
$25,000 and over	3	6	1	3
No income data	3	7	5	5
Size of Household:				
1	6	7	15	10
2	34	29	34	31
3	24	20	19	20
4	15	23	19	21
5	6	10	7	8
6	6	7	4	6
7+	9	5	2	4

[a] Categories may not add to 100 per cent due to rounding.

TABLE 2. HAVE YOU PURCHASED ANY APPLES FOR FRESH CONSUMPTION FOR YOU AND YOUR FAMILY DURING THE LAST YEAR?[a]

Apple	Population Density			
Purchases	A	B	C	TOTALS[b]
Yes	29.00[c]	212.00	166.00	407.00
	29.78	216.59	160.63	407.00
	0.02	0.10	0.18	0.30
No	4.00	28.00	12.00	44.00
	3.22	23.41	17.37	44.00
	0.19	0.90	1.66	2.75
TOTALS	33.00	240.00	178.00	451.00
	33.00	240.00	178.00	451.00
	0.21	1.00	1.84	3.04

Total chi-square = 3.04 with 2 D.F. prob > chisq = 0.22

[a] Questions asked of the homemaker during the interviewing are used as table headings throughout this study.

[b] Summation of row and column cell values may not equal total due to computer rounding.

[c] The top figure in each response category indicates the actual number of expected responses based on the chi-square test, the middle figure indicates the number of expected responses based on the chi-square test, and the bottom figure is the amount of the total chi-square value accounted for by that cell. For example, in the cell composed of the A and "yes" categories, 29.00 is the number of actual homemakers in this resident group who purchased apples during the last year, 29.78 is the expected number of yes responses based on the chi-square test, and 0.02 is the cell chi-square and indicates the amount of the total chi-square (3.04) accounted for by this cell.

TABLE 3. COLOR OF APPLES PURCHASED FOR FRESH CONSUMPTION.

Color of Apple Purchased	Population Density A	Population Density B	Population Density C	TOTALS
	6.00	65.00	71.00	142.00
Red	10.39	75.57	56.04	142.00
	1.86	1.48	3.99	7.32
	5.00	26.00	13.00	44.00
Yellow	3.22	23.41	17.38	44.00
	0.98	0.29	1.10	2.37
	22.00	144.00	88.00	254.00
Both colors	18.59	135.17	100.25	254.00
	0.63	0.58	1.50	2.70
	0.00	5.00	6.00	11.00
No response	0.80	5.85	4.35	11.00
	0.80	0.12	0.63	1.56
	33.00	240.00	178.00	451.00
TOTALS	33.00	240.00	178.00	451.00
	4.27	2.46	7.22	13.96

Total chi-square = 13.96 with 6 D.F. prob > chisq = .03

TABLE 4. IF THE AMOUNT OF FRESH APPLES YOU BUY VARIES FROM MONTH TO MONTH, WHICH MONTH DO YOU PURCHASE THE MOST?

Month	Population Density A	Population Density B	Population Density C	TOTALS
Same each month	10.00	57.00	71.00	138.00
	10.20	73.30	54.50	138.00
	0.00	3.63	5.00	8.63
December	8.00	67.00	31.00	106.00
January	7.83	56.30	41.86	106.00
February	0.00	2.03	2.82	4.85
June	2.00	16.00	8.00	26.00
July	1.92	13.81	10.27	26.00
August	0.00	0.35	0.50	0.85
September	6.00	70.00	34.00	110.00
October	8.13	58.43	43.44	110.00
November	0.56	2.29	2.05	4.90
No special months	6.00	20.00	27.00	53.00
	3.92	28.15	20.93	53.00
	1.11	2.36	1.76	5.23
	32.00	230.00	171.00	433.00
TOTALS	32.00	230.00	171.00	433.00
	1.68	10.66	12.13	24.46

Total chi-square = 24.46 with 8 D.F. prob > chisq = 0.002

TABLE 5. WHY DO YOU PURCHASE MORE FRESH APPLES DURING THESE MONTHS THAN ANY OTHERS?[a]

Reason	Population Density A	Population Density B	Population Density C	TOTALS
No more apples on their trees	3.00	24.00	0.00	27.00
	1.80	16.65	8.55	27.00
	0.80	3.24	8.55	12.59
Less expensive, plentiful, in season	2.00	60.00	27.00	89.00
	5.93	54.88	28.18	89.00
	2.61	0.48	0.05	3.13
Cooking, canning cider	1.00	17.00	4.00	22.00
	1.47	13.57	6.97	22.00
	0.15	0.87	1.26	2.28
Buy according to appetite	5.00	22.00	18.00	45.00
	3.00	27.75	14.25	45.00
	1.33	1.19	0.99	3.51
Holidays	4.00	13.00	9.00	26.00
	1.73	16.03	8.23	26.00
	2.96	0.57	0.07	3.61
Fresher or taste better	0.00	3.00	13.00	16.00
	1.07	9.87	5.07	16.00
	1.07	4.78	12.42	18.27
Need fresh fruit	1.00	9.00	5.00	15.00
	1.00	9.25	4.75	15.00
	0.00	0.01	0.01	0.02
TOTALS	16.00	148.00	76.00	240.00
	16.00	148.00	76.00	240.00
	8.92	11.14	23.36	43.42

Total chi-square = 43.42 with 12 D.F. prob > chi-square = 0.0001

[a] See Table 4 for months referred to.

TABLE 6. WHAT VARIETY OF APPLES DOES YOUR FAMILY PREFER FOR EATING FRESH?

	Population Density			
Variety	A	B	C	TOTALS
Don't know	3.00	47.00	44.00	94.00
	7.05	53.58	33.37	94.00
	2.33	0.81	3.39	6.52
Yellow delicious	7.00	41.00	14.00	62.00
	4.65	35.34	22.01	62.00
	1.19	0.91	2.92	5.01
Red delicious	7.00	69.00	47.00	123.00
	9.23	70.11	43.67	123.00
	0.54	0.02	0.25	0.81
Rome beauty	1.00	9.00	7.00	17.00
	1.28	9.69	6.04	17.00
	0.06	0.05	0.15	0.26
Starks delicious	2.00	12.00	5.00	19.00
	1.43	10.83	6.75	19.00
	0.23	0.13	0.45	0.81
Grimes golden	1.00	25.00	12.00	38.00
	2.85	21.66	13.49	38.00
	1.20	0.52	0.16	1.88
Stayman, winesap	9.00	25.00	13.00	47.00
	3.53	26.79	16.69	47.00
	8.50	0.12	0.81	9.44
TOTALS	30.00	228.00	142.00	400.00
	30.00	228.00	142.00	400.00
	14.05	2.54	8.14	24.73

Total chi-square = 24.73 with 12 D.F. prob > chi-square = 0.02

TABLE 7. WHERE DO YOU USUALLY BUY APPLES USED FOR FRESH CONSUMPTION?

Location of Purchase	Population Density A	B	C	TOTALS
Supermarket	12.00	105.00	110.00	227.00
	17.09	119.64	90.27	227.00
	1.52	1.79	4.31	7.62
Produce or fruit market	15.00	44.00	19.00	78.00
	5.87	41.11	31.02	78.00
	14.18	0.20	4.66	19.04
Neighborhood store	2.00	27.00	39.00	68.00
	5.12	35.84	27.04	68.00
	1.90	2.18	5.29	9.37
Fruit farm	3.00	48.00	1.00	52.00
	3.92	27.41	20.68	52.00
	0.21	15.47	18.73	34.41
TOTALS	32.00	224.00	169.00	425.00
	32.00	224.00	169.00	425.00
	17.82	19.65	32.99	70.45

Total chi-square = 70.45 with 6 D.F. prob > chi-square = 0.0001

TABLE 8. HOW ARE APPLES YOU BUY FOR FRESH CONSUMPTION USUALLY PACKAGED?

Preferred Package Type	Population Density A	B	C	TOTALS
Clear plastic bags	12.00	125.00	111.00	248.00
	18.86	132.00	97.14	248.00
	2.49	0.37	1.98	4.84
Overwrapped trays	1.00	9.00	16.00	26.00
	1.98	13.84	10.18	26.00
	0.48	1.69	3.32	5.50
Loose apples	6.00	33.00	33.00	72.00
	5.47	38.32	28.20	72.00
	0.05	0.74	0.82	1.61
Basket or box	14.00	64.00	10.00	88.00
	6.69	46.84	34.47	88.00
	7.98	6.29	17.37	31.64
TOTALS	33.00	231.00	170.00	434.00
	33.00	231.00	170.00	434.00
	11.01	9.09	23.48	43.58

Total chi-square = 43.58 with 6 D.F. prob > chi-square = 0.0001

TABLE 9. WHICH TYPE OF PACKAGE DO YOU PREFER FOR THE SAKE OR CONVENIENCE IN BUYING, HANDLING, AND STORAGE FOR YOUR FAMILY?

Package	Population Density			
Type	A	B	C	TOTALS
Plastic bag	12.00 16.47 1.22	125.00 129.44 0.15	96.00 87.08 0.91	233.00 233.00 2.28
Basket or box	11.00 4.45 9.62	45.00 35.00 2.86	7.00 23.55 11.63	63.00 63.00 24.10
Loose, individual	5.00 7.07 0.61	50.00 55.56 0.56	45.00 37.37 1.56	100.00 100.00 2.72
TOTALS	28.00 28.00 11.44	220.00 220.00 3.57	148.00 148.00 14.10	396.00 396.00 29.10

Total chi-square = 29.10 with 4 D.F. prob > chi-square = 0.0001

TABLE 10. WHY DO YOU PREFER THE TYPE PACKAGE YOUR APPLES FOR FRESH CONSUMPTION ARE BOUGHT IN?

	Population Density			
Reason	A	B	C	TOTALS
Can see or pick what you get	7.00 9.99 0.90	66.00 74.25 0.92	68.00 56.76 2.23	141.00 141.00 4.04
Keep better	0.00 2.06 2.06	23.00 15.27 3.91	6.00 11.67 2.76	29.00 29.00 8.73
Easier to handle or store	10.00 8.29 0.35	61.00 61.61 0.01	46.00 47.10 0.03	117.00 117.00 0.38
Economy	6.00 2.84 3.53	30.00 21.06 3.79	4.00 16.10 9.09	40.00 40.00 16.42
Only way they come	3.00 1.84 0.73	8.00 13.69 2.37	15.00 10.47 1.96	26.00 26.00 5.06
Amount is right	2.00 2.98 0.32	20.00 22.12 0.20	20.00 16.91 0.57	42.00 42.00 1.09
TOTALS	28.00 28.00 7.88	208.00 208.00 11.19	159.00 159.00 16.64	395.00 395.00 35.71

Total chi-square = 35.71 with 10 D.F. prob > chi-square = 0.0001

TABLE 11. CAN YOU USUALLY FIND APPLES FOR FRESH CONSUMPTION PACKAGED IN THE SIZE PACKAGE YOUR FAMILY PREFERS?

Response	Population Density			TOTALS
	A	B	C	
		Numbers		
Preferred package available	31	216	153	400
Packages are too small	1	5	1	7
Packages are too large	1	6	16	23
Other reasons	0	8	1	9
TOTALS	33	235	171	439

TABLE 12. WHAT SUGGESTIONS DO YOU HAVE FOR IMPROVING PACKAGING OF APPLES FOR FRESH CONSUMPTION TO AID THE HOUSEWIFE?

Suggestions	Population Density			TOTALS
	A	B	C	
		Numbers		
No suggestions	31	193	154	378
Make smaller packages	0	8	13	21
Sell apples loose	0	7	4	11
Reference to spoilage due to plastic bags	1	6	0	7
Put brand on package	0	7	0	7
TOTALS	32	221	171	424

TABLE 13. DO YOU LOOK FOR A SPECIFIC BRAND NAME WHEN YOU BUY APPLES FOR FRESH CONSUMPTION?

Brand	Population Density			TOTALS
	A	B	C	
		Numbers		
No	33	222	163	418
Yes				
Gave variety rather than brand	0	10	8	18
Other	0	4	3	7
TOTALS	33	236	174	443

TABLE 14. WHICH OF THE FOLLOWING CHARACTERISTICS IN APPLES PURCHASED FOR FRESH CONSUMPTION DO YOU PREFER?

	Population Density			
Characteristic	A	B	C	TOTALS
Soft	7.00	49.00	13.00	69.00
	5.11	37.13	26.76	69.00
	0.70	3.79	7.08	11.58
Crisp	24.00	145.00	124.00	293.00
	21.68	157.67	113.65	293.00
	0.25	1.02	0.94	2.21
Hard	2.00	46.00	36.00	84.00
	6.22	45.20	32.58	84.00
	2.86	0.01	0.36	3.23
TOTALS	33.00	240.00	173.00	446.00
	33.00	240.00	173.00	446.00
	3.81	4.83	8.38	17.02

Total chi-square = 17.02 with 4 D.F. prob > chi-square = 0.002

TABLE 15. WHICH OF THE FOLLOWING CHARACTERISTICS IN APPLES PURCHASED FOR FRESH CONSUMPTION DO YOU PREFER?

	Population Density			
Characteristic	A	B	C	TOTALS
Mealy	6.00	56.00	18.00	80.00
	6.03	42.92	31.05	80.00
	0.00	3.98	5.48	9.47
Fine-textured	27.00	179.00	152.00	358.00
	26.97	192.08	138.95	358.00
	0.00	0.89	1.23	2.12
TOTALS	33.00	235.00	170.00	438.00
	33.00	235.00	170.00	438.00
	0.00	4.87	6.71	11.59

Total chi-square = 11.59 with 2 D.F. prob > chi-square = 0.003

TABLE 16. WHICH OF THE FOLLOWING CHARACTERISTICS IN APPLES PURCHASED FOR FRESH CONSUMPTION DO YOU PREFER?

	Population Density			
Characteristic	A	B	C	TOTALS
	1.00	13.00	1.00	15.00
Dry	1.11	8.09	5.80	15.00
	0.01	2.98	3.97	6.96
	32.00	226.00	171.00	429.00
Juicy	31.81	231.37	165.82	429.00
	0.00	0.12	0.16	0.29
	0.00	1.00	0.00	1.00
In between	0.07	0.54	0.39	1.00
	0.07	0.39	0.39	0.85
	33.00	240.00	172.00	445.00
TOTALS	33.00	240.00	172.00	445.00
	0.09	3.50	4.52	8.10

Total chi-square = 8.10 with 4 D.F. prob > chi-square = 0.09

TABLE 17. WHICH OF THE FOLLOWING CHARACTERISTICS IN APPLES PURCHASED FOR FRESH CONSUMPTION DO YOU PREFER?

	Population Density			
Characteristic	A	B	C	TOTALS
	14.00	158.00	123.00	295.00
Sweet	21.45	157.56	115.99	295.00
	2.59	0.00	0.42	3.02
	16.00	73.00	43.00	132.00
Tart	9.60	70.50	51.90	132.00
	4.27	0.09	1.53	5.88
	2.00	4.00	7.00	13.00
In between	0.95	6.94	5.11	13.00
	1.18	1.25	0.70	3.12
	32.00	235.00	173.00	440.00
TOTALS	32.00	235.00	173.00	440.00
	8.03	1.34	2.65	12.02

Total chi-square = 12.02 with 4 D.F. prob > chi-square = 0.02

TABLE 18. WHICH OF THE FOLLOWING CHARACTERISTICS IN APPLES PURCHASED FOR FRESH CONSUMPTION DO YOU PREFER?

	Population Density			
Characteristic	A	B	C	TOTALS
Small	0.00	10.00	2.00	12.00
	0.89	6.44	4.67	12.00
	0.89	1.96	1.52	4.37
Medium	32.00	187.00	151.00	370.00
	27.44	198.72	143.84	370.00
	0.76	0.69	0.36	1.81
Large	1.00	42.00	20.00	63.00
	4.67	33.84	24.49	63.00
	2.89	1.97	0.82	5.68
TOTALS	33.00	239.00	173.00	445.00
	33.00	239.00	173.00	445.00
	4.53	4.62	2.70	11.86

Total chi-square = 11.86 with 4 D.F. prob > chi-square = 0.02

TABLE 19. WHICH OF THE FOLLOWING CHARACTERISTICS IN APPLES PURCHASED FOR FRESH CONSUMPTION DO YOU PREFER?

	Population Density			
Characteristic	A	B	C	TOTALS
Bright or deep red	14.00	110.00	95.00	219.00
	17.01	117.47	84.52	219.00
	0.53	0.48	1.30	2.31
More red than yellow	8.00	34.00	36.00	78.00
	6.06	41.84	30.10	78.00
	0.62	1.47	1.16	3.25
More yellow than red	10.00	77.00	28.00	115.00
	8.93	61.69	44.38	115.00
	0.13	3.80	6.05	9.98
TOTALS	32.00	115.00	159.00	412.00
	32.00	115.00	159.00	412.00
	1.28	9.98	8.50	15.53

Total chi-square = 15.53 with 4 D.F. prob > chi-square = 0.004

TABLE 20. IN YOUR OPINION WHICH APPLE VARIETY FITS THIS DESCRIPTION BEST?

	Population Density			
Variety	A	B	C	TOTALS
Yellow delicious	9.00	41.00	14.00	64.00
	4.80	35.02	24.17	64.00
	3.67	1.02	4.28	8.97
Red delicious	9.00	85.00	64.00	158.00
	11.86	86.46	59.68	158.00
	0.69	0.02	0.31	1.03
Grimes golden	0.00	17.00	8.00	25.00
	1.88	13.68	9.44	25.00
	1.88	0.81	0.22	2.90
Stayman, winesap	8.00	28.00	18.00	54.00
	4.05	29.55	20.40	54.00
	3.84	0.08	0.28	4.21
Other	2.00	20.00	11.00	33.00
	2.48	18.06	12.46	33.00
	0.09	0.21	0.17	0.47
Don't know	3.00	35.00	41.00	79.00
	5.93	43.23	29.84	79.00
	1.45	1.57	4.17	7.19
TOTALS	31.00	226.00	156.00	413.00
	31.00	226.00	156.00	413.00
	11.61	3.71	9.44	24.76

Total chi-square = 24.76 with 10 D.F. prob > chi-square = 0.006

TABLE 21. WHICH OF THE FOLLOWING FRESH FRUIT WOULD YOU SERVE FOR BREAKFAST?

	Population Density			
Fruit	A	B	C	TOTALS
Bananas	4.00	53.00	25.00	82.00
	6.05	43.73	32.21	82.00
	0.70	1.96	1.62	4.28
Apples	2.00	16.00	4.00	22.00
	1.62	11.73	8.64	22.00
	0.09	1.55	2.49	4.13
Oranges	11.00	29.00	35.00	75.00
	5.54	40.00	29.46	75.00
	5.39	3.03	1.04	9.46
Grapefruit	14.00	126.00	101.00	241.00
	17.79	128.53	94.68	241.00
	0.81	0.05	0.42	1.28
TOTALS	31.00	224.00	165.00	420.00
	31.00	224.00	165.00	420.00
	6.98	6.59	5.57	19.15

Total chi-square = 19.15 with 6 D.F. prob > chi-square = 0.004

TABLE 22. WHICH OF THE FOLLOWING FRESH FRUIT WOULD YOU SERVE FOR LUNCH?

	Population Density			
Fruit	A	B	C	TOTALS
Pears	4.00	34.00	11.00	49.00
	3.73	26.25	19.02	49.00
	0.02	2.29	3.38	5.69
Bananas	11.00	32.00	42.00	85.00
	6.47	45.53	33.00	85.00
	3.16	4.02	2.46	9.64
Peaches	5.00	93.00	53.00	151.00
	11.50	80.88	58.62	151.00
	3.67	1.82	0.54	6.03
Apples	11.00	59.00	52.00	122.00
	9.29	65.35	47.36	122.00
	0.31	0.62	0.45	1.38
TOTALS	31.00	218.00	158.00	407.00
	31.00	218.00	158.00	407.00
	7.17	8.74	6.83	22.74

Total chi-square = 22.74 with 6 D.F. prob > chi-square = 0.001

TABLE 23. WHICH OF THE FOLLOWING FRESH FRUIT WOULD YOU SERVE FOR THE EVENING MEAL?

	Population Density			
Fruit	A	B	C	TOTALS
Pears	5.00	60.00	32.00	97.00
	7.08	53.34	36.58	97.00
	0.61	0.83	0.57	2.02
Bananas	0.00	29.00	29.00	58.00
	4.23	31.89	21.87	58.00
	4.23	0.26	2.32	6.82
Peaches	10.00	84.00	51.00	145.00
	10.58	79.73	54.68	145.00
	0.03	0.23	0.25	0.51
Apples	15.00	53.00	43.00	111.00
	8.10	61.04	41.86	111.00
	5.87	1.06	0.03	6.96
TOTALS	30.00	226.00	155.00	411.00
	30.00	226.00	155.00	411.00
	10.75	2.38	3.17	16.31

Total chi-square = 16.31 with 6 D.F. prob > chi-square = 0.01

TABLE 24. WHICH OF THE FOLLOWING FRESH FRUIT WOULD YOU SERVE FOR AN ADULT'S SACK LUNCH?

Fruit	Population Density			TOTALS
	A	B	C	
Bananas	4.00	60.00	35.00	99.00
	7.49	54.06	37.45	99.00
	1.63	0.65	0.16	2.44
Peaches	1.00	11.00	5.00	17.00
	1.29	9.28	6.43	17.00
	0.06	0.32	0.32	0.70
Apples	24.00	135.00	115.00	274.00
	20.73	149.63	103.64	274.00
	0.52	1.43	1.25	3.19
Oranges	3.00	25.00	5.00	33.00
	2.50	18.02	12.48	33.00
	0.10	2.70	4.49	7.29
TOTALS	32.00	231.00	160.00	423.00
	32.00	231.00	160.00	423.00
	2.31	5.10	6.21	13.62

Total chi-square = 13.62 with 6 D.F. prob > chi-square = 0.03

TABLE 25. WHICH OF THE FOLLOWING FRESH FRUIT WOULD YOU SERVE FOR A CHILD'S SACK LUNCH?

Fruit	Population Density			TOTALS
	A	B	C	
Pears	0.00	5.00	5.00	10.00
	0.76	5.41	3.83	10.00
	0.76	0.03	0.36	1.15
Bananas	1.00	74.00	43.00	128.00
	9.68	69.30	49.02	128.00
	0.18	0.32	0.74	1.24
Apples	18.00	126.00	100.00	244.00
	18.46	132.09	93.45	244.00
	0.01	0.28	0.46	0.75
Oranges	3.00	24.00	14.00	41.00
	3.10	22.20	15.70	41.00
	0.00	0.15	0.18	0.33
TOTALS	32.00	229.00	162.00	423.00
	32.00	229.00	162.00	423.00
	0.95	0.78	1.74	3.47

Total chi-square = 3.47 with 6 D.F. prob > chi-square = 0.75

TABLE 26. WHICH OF THE FOLLOWING FRESH FRUIT WOULD YOU SERVE FOR A CHILDREN'S PARTY?

	Population Density			
Fruit	**A**	**B**	**C**	**TOTALS**
Bananas	8.00	63.00	51.00	122.00
	9.10	65.69	47.21	122.00
	0.13	0.11	0.30	0.55
Peaches	0.00	12.00	9.00	21.00
	1.57	11.31	8.13	21.00
	1.57	0.04	0.09	1.70
Apples	18.00	107.00	76.00	201.00
	14.99	108.23	77.78	201.00
	0.60	0.01	0.04	0.66
Oranges	2.00	18.00	10.00	30.00
	2.24	16.15	11.61	30.00
	0.03	0.21	0.22	0.46
Grapes	4.00	31.00	20.00	55.00
	4.10	29.62	21.28	55.00
	0.00	0.06	0.08	0.14
TOTALS	32.00	231.00	166.00	429.00
	32.00	231.00	166.00	429.00
	2.33	0.44	0.74	3.51

Total chi-square = 3.51 with 8 D.F. prob > chi-square = 0.90

TABLE 27. WHICH OF THE FOLLOWING FRESH FRUIT WOULD YOU SERVE FOR A TEENAGER'S PARTY?

	Population Density			
Fruit	A	B	C	TOTALS
Bananas	2.00	36.00	30.00	68.00
	4.87	36.68	26.45	68.00
	1.69	0.01	0.48	2.18
Peaches	2.00	18.00	19.00	39.00
	2.79	21.04	15.17	39.00
	0.22	0.44	0.97	1.63
Apples	16.00	106.00	71.00	193.00
	13.82	104.10	75.08	193.00
	0.34	0.03	0.22	0.60
Oranges	5.00	21.00	14.00	40.00
	2.86	21.58	15.56	40.00
	1.59	0.02	0.16	1.77
Grapes	5.00	45.00	29.00	79.00
	5.66	42.61	30.73	79.00
	0.08	0.13	0.10	0.31
TOTALS	30.00	226.00	163.00	419.00
	30.00	226.00	163.00	419.00
	3.93	0.63	1.92	6.48

Total chi-square = 6.48 with 8 D.F. prob > chi-square = 0.59

TABLE 28. WHICH OF THE FOLLOWING FRESH FRUIT WOULD YOU SERVE FOR AN ADULT PARTY?

	Population Density			
Fruit	A	B	C	TOTALS
Pears	2.00	25.00	15.00	42.00
	3.38	23.36	15.56	42.00
	0.56	0.12	0.00	0.68
Bananas	1.00	21.00	25.00	47.00
	3.78	26.14	17.08	47.00
	2.05	1.01	3.67	6.73
Peaches	4.00	38.00	34.00	76.00
	6.12	42.26	27.62	76.00
	0.73	0.43	1.47	2.64
Apples	15.00	84.00	36.00	135.00
	10.87	75.07	49.06	135.00
	1.57	1.06	3.48	6.11
Oranges	2.00	15.00	9.00	26.00
	2.09	14.46	9.45	26.00
	0.00	0.02	0.02	0.05
Grapefruits	0.00	10.00	1.00	11.00
	0.89	6.12	4.00	11.00
	0.89	2.46	2.25	5.60
Grapes	9.00	35.00	29.00	73.00
	5.88	40.60	26.53	73.00
	1.66	0.77	0.23	2.66
TOTALS	33.00	228.00	149.00	410.00
	33.00	228.00	149.00	410.00
	7.47	5.87	11.13	24.47

Total chi-square = 24.47 with 12 D.F. prob > chi-square = 0.02

TABLE 29. WHICH OF THE FOLLOWING FRESH FRUIT WOULD YOU SERVE FOR A CHILD'S SNACK?

	Population Density			
Fruit	A	B	C	TOTALS
Bananas	8.00	84.00	56.00	148.00
	11.46	79.56	56.98	148.00
	1.05	0.25	0.02	1.31
Peaches	1.00	17.00	10.00	28.00
	2.17	15.05	10.78	28.00
	0.63	0.25	0.06	0.94
Apples	18.00	86.00	78.00	182.00
	14.10	97.84	70.07	182.00
	1.08	1.43	0.90	3.41
Oranges	3.00	29.00	12.00	44.00
	3.41	23.65	16.94	44.00
	0.05	1.21	1.44	2.70
Grapes	3.00	13.00	8.00	24.00
	1.86	12.90	9.24	24.00
	0.70	0.00	0.17	0.87
TOTALS	33.00	229.00	164.00	426.00
	33.00	229.00	164.00	426.00
	3.51	3.14	2.58	9.23

Total chi-square = 9.23 with 8 D.F. prob > chi-square = 0.32

TABLE 30. WHICH OF THE FOLLOWING FRESH FRUIT WOULD YOU SERVE FOR A TEENAGER'S SNACK?

	Population Density			
Fruit	A	B	C	TOTALS
Bananas	3.00	49.00	39.00	91.00
	6.73	48.21	36.05	91.00
	2.07	0.01	0.24	2.32
Peaches	2.00	19.00	17.00	38.00
	2.81	20.13	15.05	38.00
	0.23	0.06	0.25	0.55
Apples	19.00	113.00	87.00	219.00
	16.20	116.03	86.76	219.00
	0.48	0.08	0.00	0.56
Oranges	4.00	28.00	13.00	45.00
	3.33	23.84	17.83	45.00
	0.14	0.72	1.31	2.17
Grapes	3.00	13.00	10.00	26.00
	1.92	13.78	10.30	26.00
	0.60	0.04	0.01	0.65
TOTALS	31.00	222.00	166.00	419.00
	31.00	222.00	166.00	419.00
	3.52	0.92	1.81	6.26

Total chi-square = 6.26 with 8 D.F. prob > chi-square = 0.62

TABLE 31. WHICH OF THE FOLLOWING FRESH FRUIT WOULD YOU SERVE FOR AN ADULT'S SNACK?

	Population Density			
Fruit	A	B	C	TOTALS
Pears	0.00 2.12 2.12	18.00 15.49 0.41	11.00 11.39 0.01	29.00 29.00 2.54
Bananas	3.00 6.94 2.24	50.00 50.75 0.01	42.00 37.31 0.59	95.00 95.00 2.84
Peaches	4.00 4.24 0.01	28.00 30.99 0.29	26.00 22.78 0.46	58.00 58.00 0.76
Apples	21.00 14.03 3.47	100.00 102.58 0.06	71.00 75.40 0.26	192.00 192.00 3.79
Oranges	1.00 2.63 1.01	24.00 19.23 1.18	11.00 14.14 0.70	36.00 36.00 2.89
Grapes	3.00 2.05 0.45	14.00 14.96 0.06	11.00 11.00 0.00	28.00 28.00 0.51
TOTALS	32.00 32.00 9.29	234.00 234.00 2.01	172.00 172.00 2.01	238.00 238.00 13.32

Total chi-square = 13.32 with 10 D.F. prob > chi-square = 0.20

TABLE 32. HOW DO YOU RATE THE NUTRITIONAL VALUE OF PROCESSED APPLES AS OPPOSED TO FRESH APPLES?

	Population Density			
Nutritional Value	A	B	C	TOTALS
Processed greater than fresh	0.00 0.44 0.44	6.00 3.20 2.45	0.00 2.36 2.36	6.00 6.00 5.25
Fresh greater than processed	24.00 25.56 0.10	184.00 185.12 0.01	139.00 136.32 0.05	347.00 347.00 0.15
Both are equally nutritious	9.00 7.00 0.57	49.00 50.68 0.06	37.00 37.32 0.00	95.00 95.00 0.63
TOTALS	33.00 33.00 1.11	239.00 239.00 2.51	176.00 176.00 2.41	448.00 448.00 6.03

Total chi-square = 6.03 with 4 D.F. prob > chi-square = 0.20

TABLE 33. IN YOUR OPINION WHICH OF THE FOLLOWING APPLES HAS THE BEST FLAVOR?

	Population Density			
Preferred Apple	A	B	C	TOTALS
Fresh red delicious produced in West Virginia	23.00	173.00	140.00	336.00
	21.17	173.73	141.10	336.00
	0.16	0.00	0.01	0.17
Fresh red delicious produced in Washington	0.00	20.00	10.00	30.00
	1.89	15.51	12.60	30.00
	1.89	1.30	0.54	3.72
Don't know	1.00	4.00	10.00	15.00
	0.94	7.76	6.30	15.00
	0.00	1.82	2.17	4.00
TOTALS	24.00	197.00	160.00	381.00
	24.00	197.00	160.00	381.00
	2.05	3.12	2.72	7.89

Total chi-square = 7.89 with 4 D.F. prob > chi-square = 0.09

TABLE 34. IN YOUR OPINION WHICH OF THE FOLLOWING APPLES HAS THE BEST TEXTURE?

	Population Density			
Preferred Apple	A	B	C	TOTALS
Fresh red delicious produced in West Virginia	23.00	173.00	141.00	337.00
	21.28	173.82	141.89	337.00
	0.14	0.00	0.01	0.15
Fresh red delicious produced in Washington	0.00	18.00	9.00	27.00
	1.71	13.93	11.37	27.00
	1.71	1.19	0.49	3.39
Don't know	1.00	5.00	10.00	16.00
	1.01	8.25	6.74	16.00
	0.00	1.28	1.58	2.86
TOTALS	24.00	196.00	160.00	380.00
	24.00	196.00	160.00	380.00
	1.84	2.48	2.08	6.40

Total chi-square = 6.40 with 4 D.F. prob > chi-square = 0.17

TABLE 35. IN YOUR OPINION WHICH OF THE FOLLOWING APPLES HAS THE BEST TENDERNESS OF SKIN?[a]

	Population Density			
Preferred Apple	A	B	C	TOTALS
Fresh red delicious produced in West Virginia	23.00	172.00	141.00	336.00
	21.22	173.31	141.47	336.00
	0.15	0.01	0.00	0.16
Fresh red delicious produced in Washington	0.00	19.00	9.00	28.00
	1.77	14.44	11.79	28.00
	1.77	1.44	0.66	3.87
Don't know	1.00	5.00	10.00	16.00
	1.01	8.25	6.74	16.00
	0.00	1.28	1.58	2.86
TOTALS	24.00	196.00	160.00	380.00
	24.00	196.00	160.00	380.00
	1.92	2.73	2.24	6.89

Total chi-square = 6.89 with 4 D.F. prob > chi-square = 0.14

[a] The data in this table also applies to the question: In your opinion which of the following apples has the best sweetness?

TABLE 36. IN YOUR OPINION WHICH OF THE FOLLOWING APPLES HAS THE BEST COLOR?[a]

	Population Density			
Preferred Apple	A	B	C	TOTALS
Fresh red delicious produced in West Virginia	23.00	173.00	140.00	336.00
	21.22	173.31	141.47	336.00
	0.15	0.00	0.02	0.17
Fresh red delicious produced in Washington	0.00	19.00	10.00	29.00
	1.83	14.96	12.21	29.00
	1.83	1.09	0.40	3.32
Don't know	1.00	4.00	10.00	15.00
	0.95	7.74	6.32	15.00
	0.00	1.80	2.15	3.96
TOTALS	24.00	196.00	160.00	380.00
	24.00	196.00	160.00	380.00
	1.98	2.90	2.56	7.45

Total chi-square = 7.45 with 4 D.F. prob > chi-square = 0.11

[a] The data in this table also applies to the question: In your opinion which of the following apples has the best juiciness?

TABLE 37. IN YOUR OPINION WHICH OF THE FOLLOWING APPLES HAS THE BEST SIZE?

	Population Density			
Preferred Apple	A	B	C	TOTALS
Fresh red delicious produced in West Virginia	23.00	171.00	139.00	333.00
	20.98	172.18	139.84	333.00
	0.20	0.01	0.01	0.21
Fresh red delicious produced in Washington	0.00	21.00	10.00	31.00
	1.95	16.03	13.02	31.00
	1.95	1.54	0.70	4.19
Don't know	1.00	5.00	11.00	17.00
	1.07	8.79	7.14	17.00
	0.00	1.63	2.09	3.73
TOTALS	24.00	197.00	160.00	381.00
	24.00	197.00	160.00	381.00
	2.15	3.18	2.79	8.13

Total chi-square = 8.13 with 4 D.F. prob > chi-square = 0.08

TABLE 38. IN YOUR OPINION WHICH OF THE FOLLOWING APPLES HAS THE BEST NUTRITIONAL VALUE?

	Population Density			
Preferred Apple	A	B	C	TOTALS
Fresh red delicious produced in West Virginia	23.00	170.00	139.00	332.00
	20.97	171.24	139.79	332.00
	0.20	0.01	0.00	0.21
Fresh red delicious produced in Washington	0.00	17.00	8.00	25.00
	1.58	12.89	10.53	25.00
	1.58	1.31	0.61	3.49
Don't know	1.00	9.00	13.00	23.00
	1.45	11.86	9.68	23.00
	0.14	0.69	1.14	1.97
TOTALS	24.00	196.00	160.00	380.00
	24.00	196.00	160.00	380.00
	1.92	2.01	1.75	5.67

Total chi-square = 5.67 with 4 D.F. prob > chi-square = .22

TABLE 39. DO YOU BELIEVE HOMEMAKERS ARE WILLING TO PAY MORE FOR FRESH RED DELICIOUS APPLES PRODUCED IN WASHINGTON THAN FOR FRESH RED DELICIOUS APPLES PRODUCED IN WEST VIRGINIA?

	Population Density			
Response	**A**	**B**	**C**	**TOTALS**
Yes	0.00 3.60 3.60	38.00 30.27 1.98	18.00 22.13 0.77	56.00 56.00 6.35
No	27.00 23.40 0.55	189.00 196.73 0.30	148.00 143.87 0.12	364.00 364.00 0.98
TOTALS	27.00 27.00 4.15	227.00 227.00 2.28	166.00 166.00 0.89	420.00 420.00 7.32

Total chi-square = 7.32 with 2 D.F. prob > chi-square = 0.02

TABLE 40. WHICH FRUIT DOES YOUR FAMILY LIKE BEST FOR FRESH CONSUMPTION?

	Population Density			
Fruit	**A**	**B**	**C**	**TOTALS**
Grapefruit	0.00 1.92 1.92	14.00 13.69 0.01	11.00 9.38 0.28	25.00 25.00 2.21
Apples	13.00 9.62 1.19	58.00 68.47 1.60	54.00 46.91 1.07	125.00 125.00 3.86
Bananas	14.00 12.46 0.19	99.00 88.74 1.19	49.00 60.80 2.29	162.00 162.00 3.67
Oranges	2.00 3.85 0.89	28.00 27.39 0.01	20.00 18.76 0.08	50.00 50.00 0.98
Peaches	3.00 2.92 0.00	25.00 20.82 0.84	10.00 14.26 1.27	38.00 38.00 2.12
Pears	1.00 1.54 0.19	8.00 10.96 0.80	11.00 7.51 1.63	20.00 20.00 2.61
No Preference	0.00 0.69 0.69	3.00 4.93 0.76	6.00 3.38 2.04	9.00 9.00 3.48
TOTALS	33.00 33.00 5.07	235.00 235.00 5.20	161.00 161.00 8.66	429.00 429.00 18.93

Total chi-square = 18.93 with 12 D.F. prob > chi-square = 0.09

TABLE 41. WHEN BUYING THIS FRUIT DO YOU LOOK FOR A SPECIFIC BRAND NAME?[a]

	Population Density			
Brand	A	B	C	TOTALS
No	26.00 24.95 0.04	172.00 179.21 0.29	140.00 133.84 0.28	338.00 338.00 0.62
Chiquita	5.00 4.21 0.15	34.00 30.22 0.47	18.00 22.57 0.93	57.00 57.00 1.55
Something other than brand	0.00 1.62 1.62	16.00 11.66 1.61	6.00 8.71 0.84	22.00 22.00 4.08
Other	2.00 2.21 0.02	15.00 15.91 0.05	13.00 11.88 0.11	30.00 30.00 0.18
TOTALS	33.00 33.00 1.84	237.00 237.00 2.43	177.00 117.00 2.16	447.00 447.00 6.42

Total chi-square = 6.42 with 6 D.F. prob > chi-square = 0.38

[a] Refers to fruits mentioned in Table 40.

TABLE 42. PER CAPITA FRESH APPLE CONSUMPTION BY PLACE OF RESIDENCE.[a]

Per Capita Consumption (lbs.)	Population Density			TOTALS
	A	B	C	
0-10	6.00	42.00	56.00	104.00
	7.61	55.34	41.05	104.00
	0.34	3.22	5.45	9.01
10-19	4.00	51.00	43.00	98.00
	7.17	52.15	38.68	98.00
	1.40	0.03	0.48	1.91
20-29	3.00	36.00	28.00	67.00
	4.90	35.65	26.44	67.00
	0.74	0.00	0.09	0.83
30-39	7.00	23.00	17.00	47.00
	3.44	25.01	18.55	47.00
	3.69	0.16	0.13	3.98
40-49	4.00	23.00	12.00	39.00
	2.85	20.75	15.39	39.00
	0.46	0.24	0.75	1.45
50-59	2.00	12.00	4.00	18.00
	1.32	9.58	7.10	18.00
	0.35	0.61	1.36	2.32
60-69	2.00	14.00	4.00	20.00
	1.46	10.64	7.89	20.00
	0.20	1.06	1.92	3.18
70-79	1.00	4.00	2.00	7.00
	0.51	3.73	2.76	7.00
	0.46	0.02	0.21	0.70
80-89	0.00	3.00	1.00	4.00
	0.29	2.13	1.58	4.00
	0.29	0.36	0.21	0.86
90-99	0.00	7.00	3.00	10.00
	0.73	5.32	3.95	10.00
	0.73	0.53	0.23	1.49
100 and greater	4.00	25.00	8.00	37.00
	2.71	19.69	14.60	37.00
	0.62	1.43	2.99	5.04
TOTALS	33.00	240.00	178.00	451.00
	33.00	240.00	178.00	451.00
	9.29	7.66	13.81	30.76

Total chi-square = 30.76 with 20 D.F. prob > chi-square = 0.06

[a] Per capita figures in this table were calculated from annual family consumption data and family size reported by homemakers.

TABLE 43. HAS YOUR USE OF APPLES FOR COOKED DESSERTS INCREASED, DECREASED, OR REMAINED CONSTANT OVER THE LAST 10 YEARS?

Level of Dessert Preparation	Population Density			TOTALS
	A	B	C	
Increased	2.00	23.00	4.00	29.00
	2.08	15.61	11.31	29.00
	0.00	3.50	4.73	8.24
Decreased	6.00	61.00	68.00	135.00
	9.69	72.65	52.67	135.00
	1.40	1.87	4.46	7.73
Remained constant	24.00	156.00	102.00	282.00
	20.23	151.75	110.02	282.00
	0.70	0.12	0.58	1.40
TOTALS	32.00	240.00	174.00	446.00
	32.00	240.00	174.00	446.00
	2.11	5.49	9.78	17.37

Total chi-square = 17.37 with 4 D.F. prob > chi-square = 0.002

TABLE 44. HAS YOUR USE OF APPLES FOR APPLESAUCE OR OTHER PREPARATIONS EATEN WITH THE MAIN PART OF THE MEAL INCREASED, DECREASED, OR REMAINED CONSTANT OVER THE LAST 10 YEARS?

Level of Sauce Preparation	Population Density			TOTALS
	A	B	C	
Increased	1.00	22.00	4.00	27.00
	1.94	14.53	10.53	27.00
	0.45	3.84	4.05	8.35
Decreased	7.00	52.00	59.00	118.00
	8.47	63.50	46.04	118.00
	0.25	2.08	3.65	5.99
Remained constant	24.00	166.00	111.00	301.00
	21.60	161.97	117.43	301.00
	0.27	0.10	0.35	0.72
TOTALS	32.00	240.00	174.00	446.00
	32.00	240.00	174.00	446.00
	0.97	6.02	8.06	15.05

Total chi-square = 15.05 with 4 D.F. prob > chi-square = 0.005

TABLE 45. HAS YOUR USE OF APPLES FOR EATING FRESH INCREASED, DECREASED, OR REMAINED CONSTANT OVER THE LAST 10 YEARS?

Level of Fresh Consumption	Population Density			TOTALS
	A	B	C	
Increased	10.00	52.00	20.00	82.00
	5.88	44.13	31.99	82.00
	2.88	1.41	4.49	8.78
Decreased	13.00	58.00	49.00	120.00
	8.61	64.57	46.82	120.00
	2.24	0.67	0.10	3.01
Remained constant	9.00	130.00	105.00	244.00
	17.51	131.30	95.19	244.00
	4.13	0.01	1.01	5.16
TOTALS	32.00	240.00	174.00	446.00
	32.00	240.00	174.00	446.00
	9.25	2.09	5.61	16.95

Total chi-square = 16.95 with 4 D.F. prob > chi-square = 0.002

TABLE 46. HAS YOUR USE OF APPLES FOR PRESERVATION INCREASED, DECREASED, OR REMAINED CONSTANT OVER THE LAST 10 YEARS?

Level of Apple Preservation	Population Density			TOTALS
	A	B	C	
Increased	0.00	16.00	0.00	16.00
	1.15	8.61	6.24	16.00
	1.15	6.34	6.24	13.73
Decreased	7.00	48.00	18.00	73.00
	5.24	39.28	28.48	73.00
	0.59	1.93	3.86	6.38
Remained constant	25.00	176.00	156.00	357.00
	25.61	192.11	139.28	357.00
	0.01	1.35	2.01	3.37
TOTALS	32.00	240.00	174.00	446.00
	32.00	240.00	174.00	446.00
	1.76	9.63	12.11	23.49

Total chi-square = 23.49 with 4 D.F. prob > chi-square = 0.0001

TABLE 47. WHAT FACTORS WERE RESPONSIBLE FOR THE DECREASE REPORTED ABOVE?[a]

	Population Density			
Decrease factors	A	B	C	TOTALS
Family decreased	11.00	59.00	36.00	106.00
	7.35	47.79	50.86	106.00
	1.81	2.63	4.34	8.78
Health reasons, including diets	1.00	7.00	21.00	29.00
	2.01	13.08	13.91	29.00
	0.51	2.82	3.61	6.94
Reference to time shortage and availability of convenience foods	0.00	10.00	23.00	33.00
	2.29	14.88	15.83	33.00
	2.29	1.60	3.24	7.13
Decrease in general food consumption	0.00	2.00	3.00	5.00
	0.35	2.25	2.40	5.00
	0.35	0.03	0.15	0.53
TOTALS	12.00	78.00	83.00	173.00
	12.00	78.00	83.00	173.00
	4.95	7.08	11.34	23.38

Total chi-square = 23.38 with 6 D.F. prob > chi-square = 0.0008

[a] Refers to responses in Tables 43 - 46

TABLE 48. WHAT FACTORS WERE RESPONSIBLE FOR THE INCREASE REPORTED ABOVE?[a]

	Population Density			
Increase Factor	A	B	C	TOTALS
Family increased	8.00	38.00	8.00	54.00
	5.52	34.98	13.50	54.00
	1.11	0.26	2.24	3.61
Health reasons, including diets	0.00	6.00	6.00	12.00
	1.23	7.77	3.00	12.00
	1.23	0.40	3.00	4.63
Access to apple trees	1.00	8.00	0.00	9.00
	0.92	5.83	2.25	9.00
	0.01	0.81	2.25	3.06
Change in tastes and preferences	0.00	5.00	8.00	13.00
	1.33	8.42	3.25	13.00
	1.33	1.39	6.94	9.66
TOTALS	9.00	57.00	22.00	88.00
	9.00	57.00	22.00	88.00
	3.67	2.86	14.43	20.97

Total chi-square = 20.97 with 6 D.F. prob > chi-square = 0.002

[a] Refers to responses in Tables 43 - 46

TABLE 49. PROPORTIONS OF APPLES PURCHASED UTILIZED IN PIES, CAKES OR OTHER COOKED DESSERTS?

Per Cent of Apples Used for Apple Desserts and Totals	Population Density A	B	C
		Per Cent	
Average	23.5	26.55	22.61
Range	10-40	5-99	5-50
Mode	25	25	10
		Numbers	
Subtotal	10	103	76
No apple used	23	137	102
Grand total	33	240	178

TABLE 50. PER CENT OF APPLE PURCHASED USED FOR APPLESAUCE OR OTHER PREPARATIONS EATEN WITH THE MAIN PART OF THE MEAL.

Per Cent of Apple Used for Applesauce and Totals	Population Density A	B	C
		Per Cent	
Average	32.08	30.75	29.70
Range	20-99	5-75	2-80
Mode	25	25	25
		Numbers	
Subtotal	12	118	66
No Apple used	21	122	112
Grand total	33	240	178

TABLE 51. PER CENT OF APPLE PURCHASED USED FOR FRESH CONSUMPTION.

Per Cent of Apple Used for Eating Fresh and Totals	Population Density A	B	C
		Per Cent	
Average	79.06	70.51	77.95
Range	25-100	1-100	5-100
Mode	100	100	100
		Numbers	
Subtotal	32	237	170
No apple used	1	3	8
Grand total	33	240	178

TABLE 52. PER CENT OF APPLE PURCHASED USED FOR PRESERVATION.

Per Cent of Apple Used for Preservation and Totals	Population Density A	B	C
		Per Cent	
Average	22.57	22.36	15.00
Range	10-33	10-50	10-30
Mode	25	10	10
		Numbers	
Subtotal	7	36	6
No apples used	26	204	172
Grand total	33	240	178

TABLE 53. WHEN YOU SERVE APPLE PIE IT IS USUALLY—

Pie Source	Population Density A	B	C	TOTALS
Made at home from fresh apples	25.00 16.61 4.24	132.00 120.80 1.04	70.00 89.59 4.28	227.00 227.00 9.56
Made at home from processed apples	5.00 4.32 0.11	36.00 31.40 0.67	18.00 23.29 1.20	59.00 59.00 1.98
Bought from bakery or grocery store	2.00 9.37 5.79	65.00 68.12 0.14	61.00 50.52 2.17	128.00 128.00 8.11
Never serve apple pie	1.00 2.71 1.08	7.00 19.69 8.18	29.00 14.60 14.19	37.00 37.00 23.45
TOTALS	33.00 33.00 11.22	240.00 240.00 10.03	178.00 178.00 21.85	451.00 451.00 43.10

Total chi-square = 43.10 with 6 D.F. prob > chi-square = 0.0001

TABLE 54. WHEN YOU SERVE APPLESAUCE IT IS USUALLY—

	Population Density			
Source	A	B	C	TOTALS
Made at home from fresh apples	25.00 15.37 6.04	140.00 111.75 7.14	45.00 82.88 17.31	210.00 210.00 30.50
Purchased in canned form	8.00 16.98 4.75	97.00 123.46 5.67	127.00 91.57 13.71	232.00 232.00 24.13
Never serve applesauce	0.00 0.66 0.66	3.00 4.79 0.67	6.00 3.55 1.69	9.00 9.00 3.01
TOTALS	33.00 33.00 11.44	240.00 240.00 13.48	178.00 178.00 32.71	451.00 451.00 57.64

Total chi-square = 57.64 with 4 D.F. prob > chi-square = 0.0001

APPENDIX

Survey Form

1. Have your purchased any apples for fresh consumption for your family during the past year?

Yes ____________
No ____________
Don't know ____________

2. When you buy apples for fresh consumption do you usually buy red apples, yellow apples, or some of both colors?

Red ____________
Yellow ____________
Some of both colors ____________

3. During the year do you buy about the same amount of fresh apples each month or does the amount purchased vary from one month to another?

Same each month ____________
Varies from month to month ____________
If the amount varies from month to month, which months do you purchase the most? ________________________________
Why do you purchase more during these months than other months?

____

4. What variety of apple does your family prefer for eating fresh?

Variety ____________
Don't know ____________

5. How many apples would you estimate that your family consumes each year for eating as fresh apples (do not include fresh apples not eaten from hand). Record answer in pounds. ____________________

6. Which fruit does your family like best for fresh consumption?

Grapefruit ____________
Apples ____________
Bananas ____________
Oranges ____________
Peaches ____________
Grapes ____________
Pears ____________
Other ____________

7. When buying this fruit do you look for a specific band name?
Yes ______ No ______ If yes, what brand ____________
Why ____

8. In a year's time would you estimate that your family consumes more apples or more of the above fruit for fresh consumption?
More apples __________
More of No. 6 __________

9. Where do you usually buy apples used for fresh consumption?
Supermarket __________
Produce or fruit market __________
Neighborhood store __________
Fruit farm __________
Trucker __________
Other __________

10. How are the apples you buy for fresh consumption usually packaged?
Packaged in clear plastic bags __________
Packaged in over-wrapped trays __________
Displayed and sold as loose individual apples __________
Other ______________ How? ______________

11. Which type of package do you prefer for the sake of convenience in buying, handling, and storage for your family?
____
Why do you prefer this type of package? ____________

12. Can you usually find apples for fresh consumption packaged in the size package you prefer for your family?
Yes __________
No __________
If answer is No, please explain. ____________________
____

13. What suggestions do you have for improving packaging of apples for fresh consumption to aid the housewife?
No suggestions __________
Suggestions ______________________
____

14. Do you look for a specific brand name when you buy apples for fresh consumption?

Yes ______
No ______

If yes, what brand? ______

15. Which of the following characteristics do you prefer in apples purchased for fresh consumption?

☐ soft
☐ crisp
☐ hard
☐ dry
☐ juicy

☐ sweet
☐ tart

☐ mealy
☐ fine textured

☐ bright or deep red
☐ more red than yellow
☐ more yellow than red
☐ small
☐ medium
☐ large

☐ Other characteristics:
Describe: ______
______

16. In your opinion which variety of apple fits this description best? ______

17. What per cent of the apples you purchase fresh are used for:

______ pies, cakes, or other cooked desserts.
______ applesauce or other preparations eaten with the main part of the meal.
______ eating fresh.
______ preservation.
100 = Total

18. Has your use of fresh apples for ______ increased, decreased, remained about constant over the last 10 years?

______ pies, cakes, or other cooked desserts.
______ applesauce or other preparations eaten with the main part of the meal.
______ eating fresh.
______ preservation.

19. What factors were responsible for the increase reported in 18 above?

______

What factors were responsible for the decrease reported in 18 above?

20. In your opinion which of the following apples has the best

	A Fancy Red Delicious Produced in West Virginia	A Fancy Red Delicious Produced in the State of Washington
Flavor		
Color		
Size		
Nutritional Value		
Texture		
Sweetness		
Tenderness of Skin		
Juiciness		

21. Do you think housewives are willing to pay a higher price for Fancy Red Delicious apples produced in Washington than for Fancy Red Delicious apples produced in West Virginia? ____________

22. Which of the following fresh fruit would you serve for:

	Pears	Bananas	Peaches	Apples	Oranges	Grapefruit	Grapes
Breakast							
Lunch							
The Evening Meal							
A Sack Lunch (adult)							
A Sack Lunch (child)							
A Children's Party							
A Teenager's Party							
An Adult Party							
Child's Snack							
Teenager's Snack							
Adult's Snack							

23. How would you rate the nutritional value of processed as opposed to fresh apples?

________ processed apples have more nutritional value than fresh apples.
________ fresh apples have more nutritional value than processed apples.
________ they are equally nutritious.

24. When you serve apple pie it is usually

________ made at home from fresh apples.
________ made at home from processed apples.
________ bought from bakery or grocery store.
________ never serve (apple pie).

25. When you serve applesauce it is usually

________ made at home from fresh apples.
________ purchased in canned form.
________ never serve applesauce.

26. In order to make studies of this type useful, we group families by size, age, education, and other categories.
How many people live in the household? (List Below) ________

No.	Relation	Age
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

27. In which of the following age groups are you? (read)

	Under 25	
	25 - 34	
	35 - 44	
	45 - 54	
	55 & over	

28. In which of the following educational groups are you?

Grades	Some Work	Graduated
Grade School 1 - 8		
High School 9 - 12		
College		
Graduate Work		

29. Into which of the following income groups would your household fall?
   a. $ 1,000 to $ 4,999
   b. $ 5,000 to $ 9,999
   c. $10,000 to $14,999
   d. $15,000 to $24,999
   e. $25,000 and over

30. What is your husband's occupation? ____________________